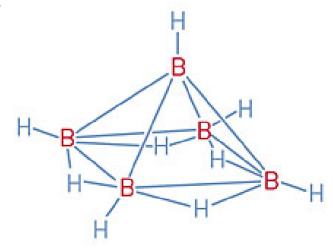
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A convenient and practical synthesis of B<sub>5</sub>H<sub>9</sub>, the pentaborane starting material for many polyborane cage compounds, has been devised by chemistry and biochemistry professor Narayan S. Hosmane and his colleagues at Northern Illinois University [*J. Am. Chem. Soc.*, 124, 7292 (2002)]. This pentaborane was for many years available to researchers for free from Air Force stockpiles that have now been destroyed.

The synthesis converts boric acid (H<sub>3</sub>BO<sub>3</sub>) to the sodium salt of the [B<sub>3</sub>H<sub>8</sub>]<sup>-</sup> ion, which then reacts with NiCl<sub>2</sub> in benzene or heavy mineral oil to produce the pentaborane. Because the product is a reactive liquid that can explode when exposed to air, synthesis in mineral oil provides a safe way to handle and store the material. The same NiCl<sub>2</sub> chemistry can also be used to couple two [B<sub>9</sub>H<sub>14</sub>]<sup>-</sup> ions to form *anti*-B<sub>18</sub>H<sub>22</sub>, the researchers demonstrate. These syntheses can be carried out with <sup>10</sup>B-enriched boric acid, making them potentially useful for preparing boron cage compounds currently being investigated in an experimental cancer treatment known as boron neutron capture therapy.



Source: Science Concentrates, C & E News, June 24, 2002, Volume 80, Number 25, p.31.